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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09 930,321 | 08 15 2001 | Yoshinori Hirobe | CU-2620 RJS | 3579 |

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ZIMMERMAN, GLENN

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2879

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/930,321 | HIROBE ET AL. |
| | Examiner Glenn Zimmerman | Art Unit 2879 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-10 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-6,8 and 10 is/are rejected.

7) Claim(s) 7 and 9 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 15 August 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

Claim 7 is objected to because of the following informalities: In claim 7 line 4, the examiner suggests changing "time of" to "times". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2 lines 6, the claim uses the limitation "range of 80 to 96". There are no units attached to these values so they are indefinite.

It appears that claim 10 was meant to depend from claim 6, as claim 5 mentions all the limitations of claim 10.

A 112 2nd paragraph rejection has been determined for claim 2, as written about above. However, a further evaluation of the claim will be done while interpreting "80 to 96" as "80 to 96 percent of the opening hole area of the front surface side hole portion of the through hole formed at the central portion".

A 112 2nd paragraph rejection has been determined for claim 10, as written about above. However, a further evaluation of the claim will be done while interpreting "claim 1" as "claim 6".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
- (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Roeder U.S. Patent 3,809,945.

Regarding claim 1, Roeder discloses a shadow mask (**shadow mask Fig. 1 ref. 28**) which has a front surface and a rear surface to which through holes are formed in a predetermined arrangement (**Fig. 2**), each of the through holes having a rear surface side hole portion (**Fig. 2**) through which an electron beam enters and a front surface side hole portion through which the electron beam outgoes (**Fig. 1, 2 or 4**) so as to form a beam spot having a predetermined shape on a surface (**phosphor screen ref. 30**) to be irradiated wherein the front surface side hole portion of the through hole formed at a peripheral portion of the shadow mask has an opening hole area smaller (**Fig. 2A**) than that of the front surface side hole portion of the through hole formed at a central portion thereof.

Regarding claim 2, Roeder discloses a shadow mask according to claim 1, wherein supposing that the opening hole area of the front surface side hole portion of the through hole formed at the central portion is 100, the opening hole area of the front surface side hole portion of the through hole formed at the peripheral portion is in a range of 80 to 96 percent of the opening hole area of the front surface side hole portion of the through hole formed at the central portion. Figure 2A shows that the central portion has a mask aperture diameter of 13.2 and a mask aperture diameter of 12.6 at the periphery. The area at the central portion is 138.6 mils² and the area at the peripheral portion is 124.7 mils². The 138.6 mils² is the 100 area and the 124.7 mils² yields an area that is 91% of the 100 area. This fulfils the limitation.

Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Godfrey et al. U.S. Patent 4,109,177.

Regarding claim 1, Godfrey et al. disclose a shadow mask (**Fig. 5 and 6**) which has a front surface and a rear surface to which through holes are formed in a predetermined arrangement (**Fig 5**), each of the through holes having a rear surface side hole portion (**Fig. 1 and 5**) through which an electron beam enters and a front surface side hole portion through which the electron beam outgoes (**Fig. 1 and 5**) so as to form a beam spot having a predetermined shape on a surface (**inner surface ref. 35**) to be irradiated wherein the front surface side hole portion of the through hole formed at a peripheral portion of the shadow mask has an opening hole area smaller (**Fig. 5 and 6**) than that of the front surface side hole portion of the through hole formed at a central portion thereof.

Regarding claim 3, Godfrey et al. disclose a shadow mask according to claim 1, wherein the opening hole areas of the front surface side hole portions of the through holes are continuously changed at a predetermined rate of change in accordance with a distance from the central portion of the shadow mask (**Fig 5**).

Regarding claim 4, Godfrey et al. disclose a shadow mask according to claim 1, wherein the through holes formed to an entire outer peripheral portion having substantially the same size and the through holes formed between the through holes formed at the central portion of the shadow mask and the through holes formed to the entire outer peripheral portion have front surface side hole portions having opening hole

areas continuously changed at a predetermined rate of change (**See Figure 5, 6 and Figure 3**).

Claim 6 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Tseng et al. U.S. Patent 5,990,607.

Regarding claim 6, Tseng et al. disclose a shadow mask (**shadow mask Fig. 5 ref. 70**) which has a front surface and a rear surface (**Fig. 5**) to which through holes are formed in a predetermined arrangement, each of the through holes having a rear surface side hole portion through which an electron beam enters and a front surface side hole portion through which the electron beam outgoes so as to form a beam spot having a predetermined shape on a surface to be irradiated, wherein the front surface side hole portion of the through hole formed at a peripheral portion of the shadow mask has substantially an elliptical shape (**col. 5 line 17**) in which an opening hole width in a direction normal to a virtual line extending from a center of the shadow mask is made smaller (**col. 5 line 45-51 and 60-65; D_{short}**) than that of the front surface side hole portion of the through hole formed at a central portion thereof.

Regarding claim 8, Tseng et al. disclose a shadow mask according to claim 6, wherein the opening hole widths of all of the front surface side hole portions at the peripheral portion are continuously changed at a predetermined rate of change (**Col. 4 line 47; D_{short}; The predetermined rate of change is the derivative of D_{short} relative to X and Y**) in accordance with a distance from the central portion of the shadow mask.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Godfrey et al. U.S. Patent 4,109,177 in view of Park U.S. Patent 6,304,025.

Regarding claim 5, Godfrey et al. teach all the limitations of claim 5, but fail to teach wherein the shadow mask is mounted to a flat-type cathode ray tube. Park in the analogous art teach a flat-type cathode ray tube (**col. 1 lines 11-19**). Additionally, Park teaches incorporation of such a flat-type cathode ray tube to reduce the distortion of the image resulting to provide an image close to an actual image (**col. 1 lines 15-18**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use flat-type cathode ray tube with the shadow mask of Godfrey et al. since such a modification would reduce the distortion of the image resulting to provide and image close to an actual image as taught by Park.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tseng et al. U.S. Patent 5,990,607 in view of Park U.S. Patent 6,304,025.

Regarding claim 10, Tseng et al. teach all the limitations of claim 10, but fail to teach wherein the shadow mask is mounted to a flat-type cathode ray tube. Park in the analogous art teach a flat-type cathode ray tube (**col. 1 lines 11-19**). Additionally, Park

teaches incorporation of such a flat-type cathode ray tube to reduce the distortion of the image resulting to provide an image close to an actual image (**col. 1 lines 15-18**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use flat-type cathode ray tube with the shadow mask of Tseng et al. since such a would reduce the distortion of the image resulting to provide and image close to an actual image as taught by Park.

Allowable Subject Matter

Claims 7 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 7, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a shadow mask including the combination of all the limitations as set forth in claim 7, and specifically "the shadow mask has a size not less than 1.46 times a thickness of the shadow mask" could not be found elsewhere in prior art.

Regarding claim 9, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a shadow mask including the combination of all the limitations as set forth in claim 9, and specifically wherein opening hole widths of all the front surface side hole portions including the front surface side hole portions at the peripheral portion are substantially the same at the front

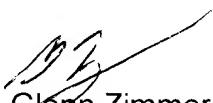
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surface side hole portions at the outermost peripheral portion of the shadow mask could not be found elsewhere in prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (703) 308-8991. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is n/a.



Glenn Zimmerman
March 9, 2003



ASHOK PATEL
PRIMARY EXAMINER